

8/29/64

Glenn called with new times ^{for acquisition} 10:35 12:11 13:49

I couldn't hear anything with the 10.7mc FMIF. Switched to the SX-25 and finally heard it at 10:46:45 for about 2 minutes. The antenna (2 bay TV) is pointed N-S. (Radiator north) and could be responsible. Should get better on the overhead pass at 12:11, ^{scheduled} directly overhead at 12:16.

The signal was very weak but I could identify frame and sync and video, SNR on A-scope couldn't be measured, couldn't see signal. Since I am using slope detection I can't expect too much.

Comes in 0.8 div below IF marker i.e. 10.4Kc down

With background noise set at 50 RF gain max, IF gain as per ↑.

Signal peaked at 52-3 at 12:17, Last heard at 12:27. Set watch by WWV.

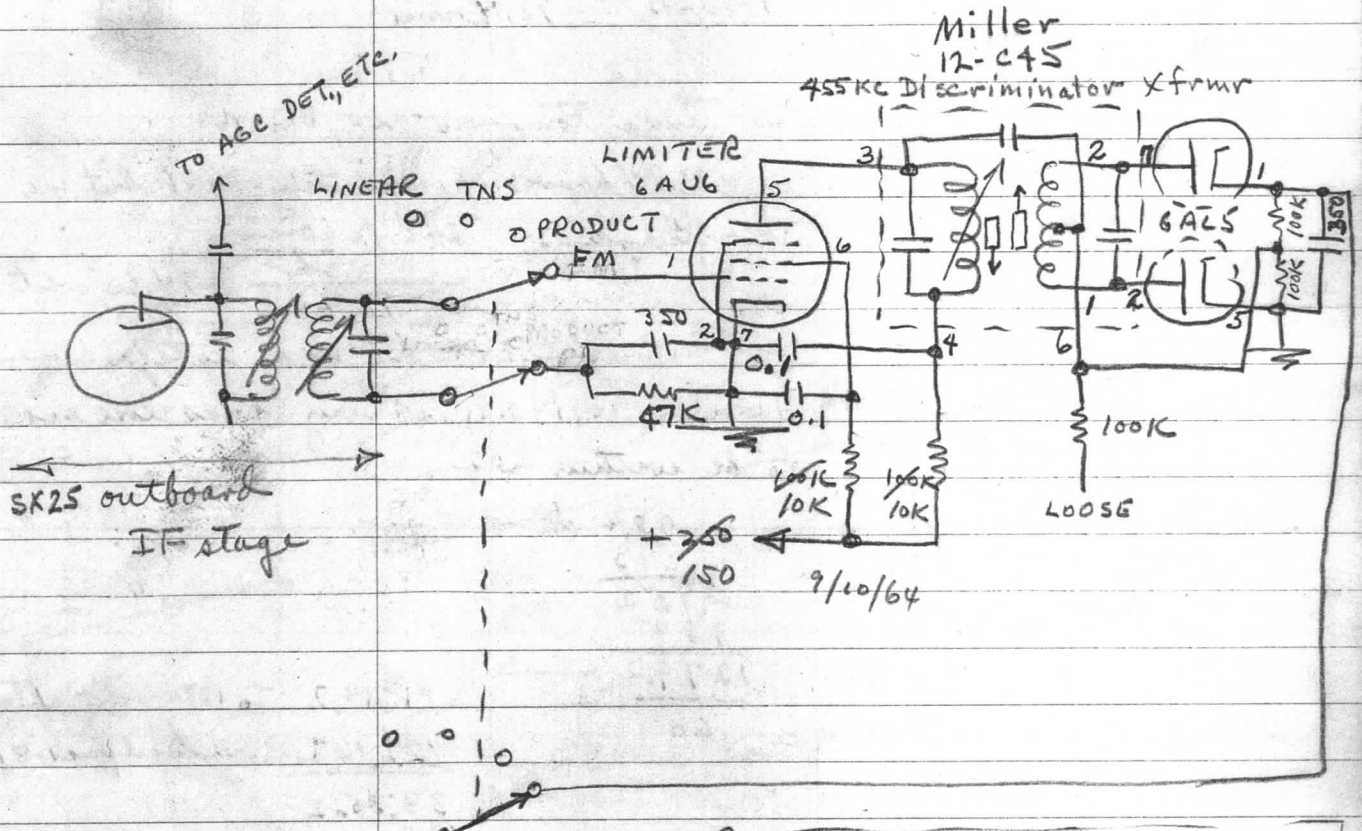
Much stronger than last pass. 10:47-10:49

Adding 455Kc discriminator to SX25 outboard chassis - I can probably stagger tune the IF's if it isn't broad enough

Took several shots with Super XX at F:2.8 2 1/2 ft. Intensity set to give about 50% writing. Video level about 3v rms. to Zapis input taken from 5000 Ω audio output of SX25

3rd pass practically inaudible.

Built as follows:



see p 274

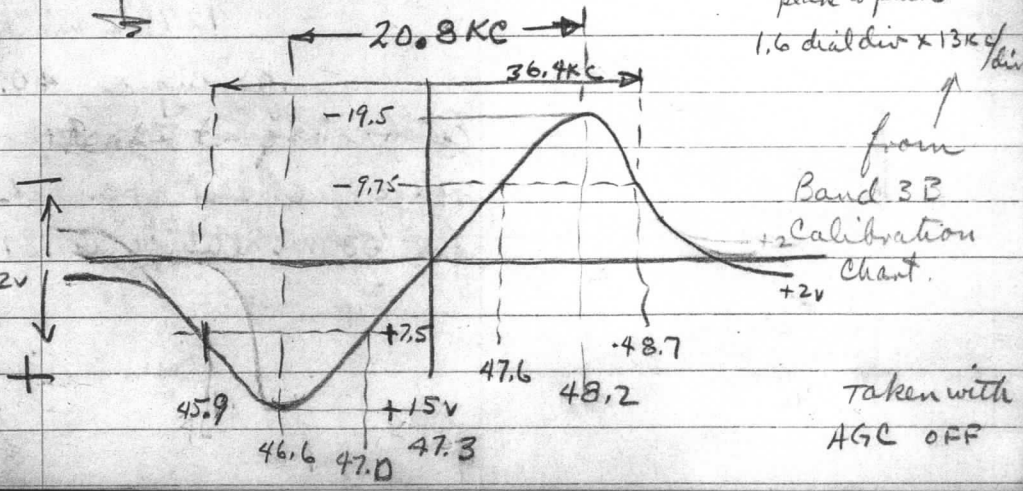
From Discriminator data sheet Xformer supposed to be 33KC between peaks linear over 17KC

audio + dc out,

48.9
46.1
2.8
1.4
47.5

48.7
45.9
2.8

48.2
46.6
1.6



Taken with AGC OFF

Glenar Corrington

12:00 - 12:30

AVCS

2-3 sec/frame

5w/ 150kc

235 mc perhaps.

9-10-11 98.4 min.

For times tomorrow i.e. 8/30/64

24 hours approximately will put me under
the orbit again.

$$\frac{24 \text{ hrs} \times \frac{60 \text{ min}}{\text{hr}}}{98.4 \text{ min}} = 14.65 \text{ orbits}$$

Naturally it can only be an integral number
of orbits 13, 14, 15, 16 may pass close enough
to be within LOS.

$$\begin{array}{r} 98.4 \\ 13 \\ \hline 2952 \\ 984 \\ \hline 1279.2 \text{ minutes} \\ 60 \end{array}$$

= 21:19.2 to 13th orbit after reference

12:16 overhead pass 8/29/64

33:35.2

24

9:35.2 40°N latitude crossing

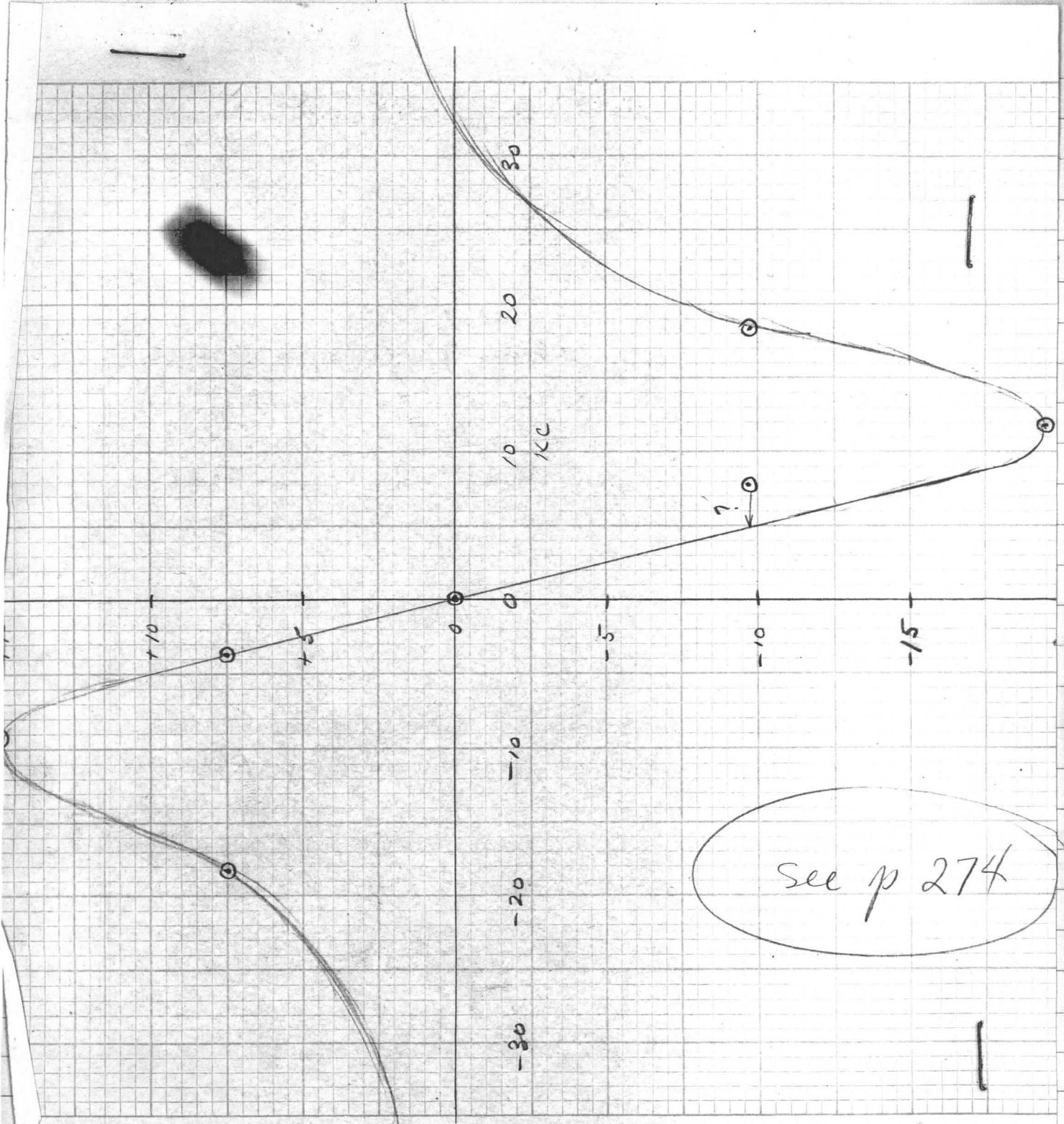
Earth turns approx

$$\frac{360^\circ}{24 \text{ hrs}}$$

$$= 15^\circ/\text{hr} \times \frac{1 \text{ hr}}{60 \text{ min}} = \frac{1}{4}^\circ/\text{min}$$

$$1279.2 \text{ min} \times \frac{1}{4}^\circ/\text{min} = 319.8^\circ$$

giving a 40.2° longitude difference
Earth not having turned enough, 2100 statute miles
range of closest approach. LOS to horizon
for 500 mi altitude is 1893 mi.



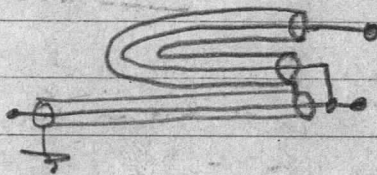
see p 274

8/30/64

Signal on 2 pieces. Using folded dipole on roof.

Transmission line attenuation for Amphenol 214-056 is given in ARRL 1962 handbook. 1.3 db/100 ft. Since I have about 40 ft of line, should be about 0.5 db. Certainly nothing to get excited about -

Measured input impedance VSWR to the balun (p250) - Extremely high. Tried a $\frac{1}{2}$ coax balun



Same result. Measured both with 300 Ω load. Both very good -

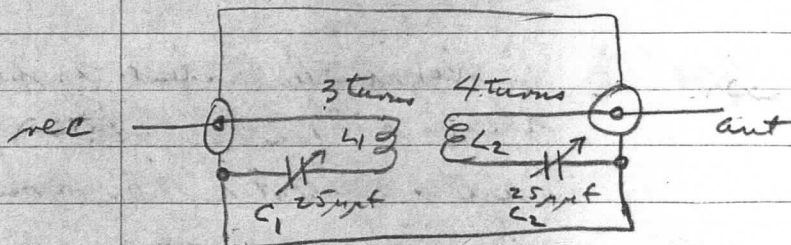
Measured with a folded dipole ($\frac{1}{2}$ long) load - very high SWR

Shortened folded dipole to $\frac{1}{2}$ electrical length $V = .82C$ also very high.

8/31/64

Yesterday I set up oscillator in backyard next door - to try to get signal from antenna avoiding direct coupling to the receiver. Signal read 5db over 59, almost as high as when oscillator is in the basement.

Built bandpass filter to avoid UNICOM aircraft frequency:



Found initial resonance by putting a "T" in the antenna line and tuning for null. ^{null is very deep} With filter in the line, the receiver circuit peaks well but the antenna circuit does not peak the output at resonance (full C_2 gave max) so I increased L_2 to 4 turns. Still no definite peak. I varied the coupling and could get back to 59 \pm 5db - I stopped at this point.

Using Heathkit SWR bridge - indicates pretty well, excited by VHF oscillator - that is I don't get full scale on forward power, forward and back power are not equal on an open - But refl pow reads zero with $50\ \Omega$ load.

8/31

Realized that there is some detail in one of the 8/29 pix - Can see both horizontal and vertical sync bars. Don't know which end is north or east. May be upside down and backwards. Black may also be white.

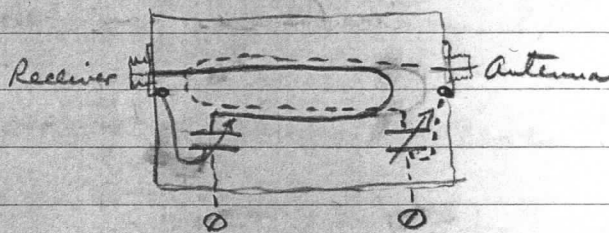
High SWR in antenna might have been due to 300 Ω line going over the eavesports.
About 25 pF is $50\ \Omega$ at 137 mc

(120mc)

9/1/64

Put in standoffs around downspouts. SWR to antenna improved. I can get it down to unity by about 4" of Al foil wrapped around 300 Ω line about 6" above the balun.

Reworked bandpass filter - now
single turn in each coil (about 4" x 1")



Coils spaced about $\frac{1}{8}$ " and cemented with
DUCO.

Exposure: Robot camera at $2\frac{1}{2}$ ft
Set f:2.8 TriX film. About
1V RMS signal on CRT cathode
Intensity set to give a bias level - i.e.
not quite extinguished on peaks.
The f:5.6 setting did not work.

Need: close up lens. I have to work
near max enlargement with some
loss in detail.

Hum should be traced -
perhaps the unused blanking tube
should be pulled. Receiver output
probably has high hum level too
since I am working with the
AF gain pot quite low - signal
level low. Perhaps 500 Ω output

instead of 5000.

Filter at 2800 cps \pm would help. The CRT can resolve perhaps 200 lines, say 100 cycles.

$$\frac{100 \text{ cycles}}{\frac{1}{4} \text{ sec}} = 400 \text{ cps}$$

From Dave McCandless

Moorestown UNICOM is 122.8 mc

127.296 L.O.

122.800

4.496 mc

2

8.992 ??

Another UNICOM freq is 123.1

$\frac{3}{4}$ to $\frac{3}{4}$ channel 122.9

122.5 122.6 122.7 multiplex communication

airport tower frequency.

My picture for the 11:16 AM pass Sunday 8/30/64 matches with a Nimbus picture

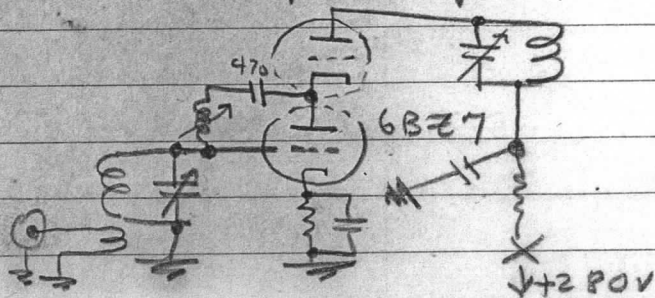
From AED - Glenn Corrington
 Orbit period of NIMBUS 98 min 26 sec
 Apogee 578 nm
 Perigee 262 nm
 Angle of inclination 99°

They do not know where perigee is.

Sept 5, 1964

Spent the last 2 nights trying to improve the converter. 0.7 ma in noise generator gave an S-5 to S-6 change. This was 3 db as measured with new 41 db step attenuator in the SX-25 input coax. I was able to improve this to 4 db change - I changed bypasses, changed coax carrying L.O. to mixer, removed extra parts, changed tap tapping up halfway on plate coil of 1st tripler, tried loading with $4700\ \Omega$ resistor (removed it because I need more drive). Best noise figure is at maximum L.O. drive - I get S4-S6 change (4 db) Mixer grid test point - 0.61 V.

Improvement came from neutralizing cascade input stage



Tried in the stage L but I couldn't find the right value.